A

A - Abbreviation for "ampere". Unit of electrical current.
absorption - Process of dissipation of energy as it travels through a medium. Example: radio waves lose some of their energy as they travel through the atmosphere.
AC - Abbreviation for "Alternating Current"
acceptor atoms - Trivalent atoms that accept free electrons from pentavalent atoms.
AC coupling - Circuit that passes an AC signal while blocking a DC voltage.
AC/DC - Equipment that will operate on either an AC or DC power source.
AC generator - Device used to transform mechanical energy into AC electrical power.
AC load line - A graph representing all possible combinations of AC output voltage and current for an amplifier.
AC power supply - Power supply that delivers an AC voltage.
active component - A component that changes the amplitude of a signal between input and output.
active filter - A filter that uses an amplifier in addition to reactive components to pass or reject selected frequencies.
active region - The region of BJT operation between saturation and cutoff used for linear amplification.
AC voltage - A voltage in which the polarity alternates.
ADC - Abbreviation for "analog to digital converter"
Admittance - (symbol "Y") Measure of how easily AC will flow through a circuit. Admittance is the reciprocal of impedance and is measured in siemens.
AF - Abbreviation for "audio frequency".
AFC - Abbreviation for "automatic frequency control".
AGC - Abbreviation for "automatic gain control"
alkaline cell - A primary cell that delivers more current than a carbon-zinc cell. Also known as an "alkaline manganese cell".
alligator clip - Spring clip on the end of a test lead used to make a temporary connection.
alpha - Ratio of collector current to emitter current in a bipolar junction transistor (BJT). Greek letter alpha "α" is the symbol used.
alternating current - An electric current that rises to a maximum in one direction, falls back to zero and then rises to a maximum in the opposite direction and then repeats.
alternator - Name for an AC generator.
AM - Abbreviation for "amplitude modulation"
ammeter - A meter used to measure current.
ampere - Unit of electrical current.
amplifier - A circuit that increases the voltage, current, or power of a signal.
amplitude - Magnitude or size of a signal voltage or current.
analog - Information represented as continuously varying voltage or current rather than in discrete levels as opposed to digital data varying between two discrete levels.
anode - The positive electrode or terminal of a device. The "P" material of a diode.
antenna, transmitting - A device that converts an electrical wave into an electromagnetic wave that radiates away from the antenna.
antenna, receiving - A device that converts a radiated electromagnetic wave into an electrical wave.
apparent power - Power attained in an AC circuit as a product of effective voltage and current which reach their peak at different times.
arc - Discharge of electricity through a gas such as lightning discharging through the atmosphere.
armature - The rotating or moving component of a magnetic circuit.
armstrong oscillator - An oscillator that uses an isolation transformer to achieve positive feedback from output to input.
astable multivibrator - An oscillator that produces a square wave output from a DC voltage.
atom - The smallest particle that an element can be broken down into and still maintain its unique identity.
atomic number - The number of positive charges or protons in the nucleus of an atom.
attenuate - To reduce the amplitude of an action or signal. The opposite of amplification.
audio - Relating to frequencies that can be heard by the human ear. Approximately 20 Hz. to 20 kHz.
autotransformer - A single winding transformer where the output is taken from taps on the winding.
average value - A value of voltage or current where the area of the wave above the value equals the area of the wave below the value.
AVC - Abbreviation for "automatic volume control"
avionics - Aviation electronics.
AWG - Abbreviation for "American wire gauge". A gauge that assigns a number value to the diameter of a wire.

B

balanced bridge - Condition that occurs when a bridge circuit is adjusted to produce a zero output.
band-pass filter - A tuned circuit designed to pass a band of frequencies between a lower cut-off frequency (f_1) and a higher cut-off frequency (f_2). Frequencies above and below the pass band are heavily attenuated.
band-stop filter - A tuned circuit designed to stop frequencies between a lower cut-off frequency (f_1) and a higher cut-off frequency (f_2) of the amplifier while passing all other frequencies.
bandwidth - Width of the band of frequencies between the half power points.
barrier potential - The natural difference of potential that exists across a forward biased pn junction.
base - The region that lies between the emitter and collector of a bipolar junction transistor (BJT).
base biasing - A method of biasing a BJT in which the bias voltage is supplied to the base by means of a resistor.
battery - A DC voltage source containing two or more cells that convert chemical energy to electrical energy.
baud - A unit of signaling speed equal to the number of signal events per second. Not necessarily the same as bits per second.

beta - (b) The ratio of collector current to base current in a bipolar junction transistor (BJT).
bias - A DC voltage applied to a device to control its operation.
binary - A number system having only two symbols, 0 and 1. A base 2 number system.
bipolar junction transistor - (BJT), A three terminal device in which emitter to collector current is controlled by base current.
bistable multivibrator - A multivibrator with two stable states. An external signal is required to change the output from one state to the other. Also called a latch.
bleeder current - A current drawn continuously from a source. Bleeder current is used to stabilize the output voltage of a source.
bode plot - A plot of gain versus frequency.
branch current - The portion of total current flowing in one path of a parallel circuit.
breakdown voltage - Voltage at which the breakdown of a dielectric or insulator occurs.
break over voltage - Minimum voltage required to cause a diac to break down and conduct.
bridge rectifier - A circuit using four diodes to provide full wave rectification. Converts an AC voltage to a pulsating DC voltage.
buffer - An amplifier used to isolate a load from a source.
bulk resistance - The natural resistance of a "P" type or "N" type semiconductor material.
Butterworth filter - A type of active filter characterized by a constant gain (flat response) across the mid-band of the circuit and a 20 dB per decade roll-off rate for each pole contained in the circuit.
BW - Abbreviation for bandwidth.
bypass capacitor - A capacitor used to provide an AC ground at some point in a circuit.
byte - Group of eight binary digits or bits.

C

cable - Group of two or more insulated wires.
CAD - Abbreviation for "computer aided design"
calibration - To adjust the correct value of a reading by comparison to a standard.
capacitance - The ability of a capacitor to store an electrical charge. The basic unit of capacitance is the Farad.
capacitive reactance - The opposition to current flow provided by a capacitor. Capacitive reactance is measured in ohms and varies inversely with frequency.
capacitor - An electronic component having capacitive reactance.
capacitor microphone - Microphone whose operation depends on variations in capacitance caused by varying air pressure on the movable plate of a capacitor.
carbon-film resistor - Device made by depositing a thin carbon film on a ceramic form.
carbon microphone - Microphone whose operation depends on pressure variation in carbon granules causing a change in resistance.
carbon resistor - Resistor of fixed value made by mixing carbon granules with a binder which is moulded and then baked.
cascaded amplifier - An amplifier with two or more stages arranged in a series configuration.
cascode amplifier - A high frequency amplifier made up of a common-source amplifier with a common-gate amplifier in its drain network.
cathode - The negative terminal electrode of a device. The "N" material in a junction diode.
cathode ray tube - (CRT) Vacuum tube used to display data in a visual form. Picture tube of a television or computer terminal.
cell - Single unit used to convert chemical energy into a DC electrical voltage.
center frequency - Frequency to which an amplifier is tuned. The frequency half way between the cut-off frequencies of a tuned circuit.
center tap - Midway connection between the two ends of a winding.
center tapped rectifier - Circuit that make use of a center tapped transformer and two diodes to provide full wave rectification.
center tapped transformer - A transformer with a connection at the electrical center of a winding.
ceramic capacitor - Capacitor in which the dielectric is ceramic.
charge - Quantity of electrical energy.
charge current - Current that flows to charge a capacitor or battery when voltage is applied.
chassis - Metal box or frame into which components are mounted.
chassis ground - Connection to a chassis.
chebyshev filter - A type of active filter characterized by high roll-off rates (40 dB per decade per pole) and mid-band gain that is not constant.
choke - Inductor used to oppose the flow of alternating current.
circuit - Interconnection of components to provide an electrical path between two or more components.
circuit breaker - A protective device used to open a circuit when current exceeds a maximum value. In effect a reusable fuse.
clamper - A diode circuit used to change the DC level of a waveform without distorting the waveform.
clapp oscillator - A variation of the Colpitts oscillator. An added capacitor is used to eliminate the effects of stray capacitance on the operation of the basic Colpitts oscillator
class A amplifier - A linear amplifier biased so the active device conducts through 360 degrees of the input waveform.
class B amplifier - An amplifier with two active devices. The active components are biased so that each conducts for approximately 180 degrees of the input waveform cycle.
class C amplifier - An amplifier in which the active device conducts for less than 180 degrees of the input waveform cycle.
clipper - A diode circuit used to eliminate part of a waveform
clipping - Distortion caused by overdriving an amplifier.
clock - A square waveform used for synchronizing and timing of several circuits.
closed circuit - Circuit having a complete path for current flow.
closed-loop gain - Gain of an amplifier when a feedback path is present.
coaxial cable - Transmission line in which the signal carrying conductor is covered by a dialectric and another conductor.
coefficient of coupling - The degree of coupling between two circuits.
coercive force - (H) Magnetizing force needed to reduce residual magnetism in a material to zero.

collector - The semiconductor region in a bipolar junction transistor through which a flow of charge carriers leaves the base region.
collector characteristic curve - A graph of collector voltage over collector current for a given base current.
color code - Set of colors used to indicate value of a component.
colpitts oscillator - An oscillator with a pair of tapped capacitors in the feedback network.
common-anode display - A multi-segment light emitting diode (LED) with a single positive voltage input connection. Separate cathode connections are provided for each individual segment.
common cathode display - A multi-segment light emitting diode (LED) with a single negative voltage input connection. Separate anode connections are provided for each individual segment.
common base amplifier - A BJT circuit in which the base connection is common to both input and output.
common collector amplifier - A BJT circuit in which the collector connection is common to both input and output.
common drain amplifier - A FET circuit in which the drain connection is common to both input and output.
common emitter amplifier - A BJT circuit in which the emitter connection is common to both input and output.
common gate amplifier - A FET circuit in which the gate connection is common to both input and output.
common source amplifier - A FET circuit in which the source connection is common to both input and output.
common-mode rejection ratio - (CMRR) The ratio of op-amp differential gain to common-mode gain. A measure of an op-amp's ability to reject common-mode signals such as noise.
common-mode signals - Signals that appear simultaneously at two inputs of an operational amplifier (op-amp). Common mode signals are always equal in amplitude and phase.
comparator - An op-amp circuit that compares two inputs and provides a DC output indicating the polarity relationship between the inputs.
complementary symmetry amplifier - A class B amplifier using matched complementary transistors. Does not require a phase inverter for push-pull output.
complementary transistors - Two transistors, one NPN and one PNP having near identical characteristics. N-channel and P-channel FETs can also be complementary.
complex numbers - Numbers composed of a real number part and an imaginary number part.
compliance - The maximum possible peak-to-peak output of an amplifier.
constant current circuit - Circuit used to maintain constant current to a load having resistance that changes.
contact - Current carrying part of a switch, relay or connector.
continuity - Occurs when a complete path for current exists.
conventional current flow - Concept of current produced by the movement of positive charges towards the negative terminal of a source.
copper loss - Power lost in transformers, generators, connecting wires and other parts of a circuit due to current flow through the resistance of copper conductors.
core - Magnetic material within a coil used to concentrate the magnetic field.
coulomb - Unit of electric charge. A negative coulomb charge consists of 6.24×10^{18} electrons.
counter electromotive force - (counter emf) Voltage induced into an inductor due to an alternating or pulsating current. Counter emf is always in polarity opposite to that of the applied voltage. Opposing a change of current.
coupling - To electronically connect two circuits so that signal will pass from one to the other.
covalent bond - The way some atoms complete their valence shells by sharing valence electrons with neighbouring atoms.
crossover distortion - Distortion caused by both devices in a class B amplifier being cut-off at the same time.
crowbar - Circuit used to protect the output of a source from a short circuited load. Load current is limited to a value the source can deliver without damage.
CRT - Abbreviation for cathode ray tube.
crystal - Natural or synthetic piezoelectric or semiconductor material with atoms arranged with some degree of geometric regularity.
crystal-controlled oscillator - Oscillator that uses a quartz crystal in its feedback path to maintain a stable output frequency.
current - Measured in amperes, it is the flow of electrons through a conductor. Also know as electron flow.
current amplifier - Amplifier to increase signal current.
current divider - Parallel network designed to divide the total current of a circuit
current feedback - Feedback configuration where a portion of the output current is fed back to the amplifier input.
current-limiting resistor - Resistor in the path of current flow to control the amount of current drawn by a device.
current mirror - Term used to describe the fact that DC current through the base circuit of a class B amplifier is approximately equal to the DC collector current.
cutoff - Condition when an active device is biased such that output current is near zero or beyond zero.
cutoff frequency - Frequency at which the power gain of an amplifier falls below 50% of maximum.
cycle - When a repeating wave rises from zero to a positive maximum then back to zero and on to a negative maximum and back to zero it is said to have completed one cycle.

D

DAC - Abbreviation for "digital to analog converter."
damping - Reduction in magnitude of oscillation due to energy being dissipated as heat.
Darlington pair - An amplifier consisting of two bipolar junction transistors with their collectors connected together and the emitter of one connected to the base of the other. Circuit has an extremely high current gain and input impedance.
DC - Abbreviation for "direct current".
DC load line - A graph representing all possible combinations of voltage and current for a given load resistor in an amplifier.
DC offset - The change in input voltage required to produce a zero output voltage when no signal is applied to an amplifier.
DC power supply - Any source of DC power for electrical equipment.
dead short - Short circuit having zero resistance.
decade - A frequency factor of ten.

decibel - (dB) a logarithmic representation of gain or loss.
degenerative feedback - Also called negative feedback. A portion of the output of an amplifier is inverted and connected back to the input. This controls the gain of the amplifier and reduces distortion and noise.
delay time - The time for collector current to reach 10% of its maximum value in a BJT switching circuit.
depletion region - The area surrounding a pn junction that is depleted of carriers.
depletion mode - In a FET, an operating mode where reverse gate-source voltage is used to deplete the channel of free carriers. This reduces the channel conductance and increases resistance.
depletion-mode MOSFET - A MOSFET designed to operate in either depletion mode or enhancement mode.
device - A component or part.
diac - A two terminal bidirectional thyristor. Has a symmetrical switching
dielectric - Insulating material between two plates where an electrostatic field exists.
dielectric constant - Property of a material that determines how much electrostatic energy can be stored per unit volume when unit voltage is applied.
dielectric strength - The maximum voltage an insulating material can withstand without breaking down.
differential amplifier - An amplifier in which the output is in proportion to the differences between voltages applied to its two inputs.
differentiator - A circuit in which the output voltage is in proportion to the rate of change of the input voltage. A high pass RC circuit.
diffusion - Tendency of conduction band electrons to wander across a pn junction to combine with valence band holes.
digital - Relating to devices or circuits that have outputs of only two discrete levels. Examples: 0 or 1, high or low, on or off, true or false etc.
diode - A two terminal device that conducts in only one direction.
DIP - Abbreviation for "dual in line package."
direct coupling - Where the output of an amplifier is connected directly to the input of another amplifier or to a load. Also known as DC coupling because DC signals are not blocked.
direct current - Current that flows in only one direction.
discharge - Release of energy stored in either a battery or a capacitor.
discrete component - Package containing only a single component as opposed to an integrated circuit containing many components in a single package.
dissipation - Release of electrical energy in the form of heat.
distortion - An undesired change in a waveform or signal.
distributed capacitance - Any capacitance other than that within a capacitor. For example, the capacitance between adjacent turns of wire in a coil.
distributed inductance - Any inductance other than that within an inductor. Example inductance in any conductor.
domain - A moveable magnetized area in a magnetized material. Also known as magnetic domain.
donor atoms - Pentavalent atoms that give up electrons to the conduction band in an N type semiconductor material.
doping - The process of adding impurity atoms to intrinsic (pure) silicon or germanium to improve the conductivity of the semiconductor material.
dot convention - Standard used with transformer symbols to indicate whether the secondary voltage is in phase or out of phase with the primary voltage.
drift - A problem that can develop in tuned amplifiers when the frequency of the tuned circuit changes due to temperature or component aging.
dropping resistor - Resistor whose value has been chosen to drop or develop a given voltage.
dry cell - DC voltage generating chemical cell using a non liquid (paste) electrolyte.
dual in-line package - Integrated circuit package having two rows of connecting pins.
dual trace oscilloscope - Oscilloscope that can simultaneously display two signals.
dynamic - Relating to conditions that are changing or in motion.

E

E-core - Laminated form in the shape of the letter "E", onto which inductors and transformers are wound.
eddy currents - Currents induced into a conducting core due to the changing magnetic field. Eddy currents produce heat which is a loss of power and lowers the efficiency of an inductor.
efficiency - The amount of power delivered to the load of an amplifier as a percentage of the power required from the power supply.
electric charge - Electric energy stored on the surface of a material. Also known as a static charge.
electric field - A field or force that exists in the space between two different potentials or voltages. Also known as an electrostatic field.
electricity - Science states that certain particles possess a force field or charge. The charge possessed by an electron is negative while the charge possessed by a proton is positive. Electricity can be divided into two groups, static and dynamic. Static electricity deals with charges at rest and dynamic electricity deals with charges in motion.
electric polarization - A displacement of bound charges in a dielectric when placed in an electric field.
electro acoustic transducer - Device that produces an energy transfer from electric to acoustic (sound) or from acoustic to electric. Examples include a microphone, earphones and loudspeakers.
electroluminescence - Conversion of electrical energy into light energy.
electrolyte - Electrically conducting liquid (wet) or paste (dry)
electrolytic capacitor - A capacitor having an electrolyte between the two plates. A thin layer of oxide is deposited on only the positive plate. The oxide acts as the dielectric for the capacitor. Electrolytic capacitors are polarized and so must be connected in correct polarity to prevent breakdown.
electromagnet - A coil of wire usually wound on a soft iron or steel core. When current is passed through the coil a magnetic field is generated. The core provides an easy path for the magnetic lines of force. This concentrates the field in the core.
electromagnetic communication - Use of an electromagnetic wave to pass information between two points. Also called wireless communication.

electromagnetic induction - Voltage produced in a coil due to relative motion between the coil and magnetic lines of force.
electromagnetic spectrum - List or diagram showing the range of electromagnetic radiation.
electromagnetic wave - Wave that consists of both electric and magnetic variation.
electromagnetism -Relates to the magnetic field generated around a conductor when current is passed through it.
electromechanical transducer - Device that transforms electrical energy into mechanical energy (electric motor) or mechanical energy into electrical energy (generator).
electromotive force - Force that causes the motion of electrons due to potential difference between two points. (voltage)
electron - Negatively charged subatomic particle of negative charge that orbits the nucleus of an atom.
electron flow - Electrical current produced by the movement of free electrons towards a positive terminal.
electrostatic - Related to static electric charge.
electrostatic field - Force field produced by static electrical charges.
emitter - The semiconductor region from which charge carriers are injected into the base of a bipolar junction transistor.
emitter feedback - Coupling from the emitter output to the base input of a bipolar junction transistor.
emitter follower - A common collector amplifier. Has a high current gain, high input impedance and low output impedance.
energized - Being electrically connected to a voltage source so the device is activated.
energy - Capacity to do work.
engineering notation - A floating point system in which numbers are expressed as products consisting of a number greater than one multiplied by an appropriate power of ten that is some multiple of three.
enhancement-mode MOSFET - A field effect transistor in which there are no charge carriers in the channel when the gate source voltage is zero.
equivalent resistance - Total resistance of all the individual resistances in a circuit.

F

fall time - Time it takes the falling edge of a pulse to go from 90% of peak voltage to 10% of peak voltage.
farad - The basic unit of capacitance.
feedback - A portion of the output signal of an amplifier which is connected back to the input of the same amplifier.
feedback amplifier - An amplifier with an external signal path from its output back to its input.
ferrite - A powdered, compressed and sintered magnetic material having high resistively. The high resistance makes eddy current losses low at high frequencies.
ferrite bead - Ferrite composition in the form of a bead. Running a wire through the bead increases the inductance of the wire.
ferrite-core inductor - An inductor wound on a ferrite core.
ferrites - Compound composed of iron oxide, a metallic oxide and ceramic. The metal oxides include zinc, nickel, cobalt or iron.
ferrous - Composed of and or containing iron. A ferrous metal exhibits magnetic characteristics as opposed to non-ferrous material.
fiber optics - Laser's light output carries information that is conveyed between two points by thin glass optical fibers.
field effect transistor - (FET) A voltage controlled transistor in which the source to drain conduction is controlled by gate to source voltage.
filament - Thin thread of carbon or tungsten which produces heat or light with the passage of current.
filter - Network consisting of capacitors, resistors and/or inductors used to pass certain frequencies and block others.
flip flop - A bistable multivibrator. A circuit which has two output states and is switched from one to the other by means of an external signal (trigger).
floating ground - Common connection in a circuit that provides a return path for current but is not connected to an earth ground.
flow soldering - Flow or wave soldering technique in large scale electronic assembly to solder all the connections on a printed circuit board by moving the board over a wave of molten solder.
flux - Material used to remove oxide films from the surface of metals in preparation for soldering.
flux - In magnetism, the magnetic field consisting of lines of force.
flux density - The concentration of magnetic lines of force. Determines strength of the magnetic field.
flywheel effect - Sustaining effect of oscillation in an *LC* circuit.
forward bias - A PN junction bias which allows current to flow through the junction. Forward bias decreases the resistance of the depletion layer.
free electrons - Electrons that are not in any orbit around a nucleus.
free running multivibrator - A multivibrator that produces a continuous output waveform without any signal input. A square wave generator used to produce a clock signal.
frequency - Rate of recurrence of a periodic wave. Measured in Hertz (cycles per second).
frequency-division multiplex - (FDM) Transmission of two or more signals over a common path by using a different frequency band for each signal.
frequency-domain analysis - A method of representing a waveform by plotting its amplitude against frequency.
frequency meter - Meter used to measure frequency of periodic waves.
frequency multiplier - A harmonic conversion circuit in which the frequency of the output signal is an exact multiple of the input frequency.
frequency response - Indication of how well a circuit responds to different frequencies applied to it.
frequency response curve - A graph of amplitude over frequency indicating a circuit response to different frequencies.
full scale deflection - (FDS) Deflection of a meter's pointer to the farthest position on the scale.
full wave rectifier - Rectifier that makes use of the full AC wave in both the positive and negative half cycles.
function generator - Signal generator that can produce sine, square, triangle and saw tooth output waveforms.
fundamental frequency - Lowest frequency in a complex waveform.
fuse - A protective device in the current path that melts or breaks when current exceeds a predetermined maximum value.

G

gain - Increase in voltage, current and/or power. Gain is expressed as a ratio of amplifier output value to the corresponding amplifier input value.
gain bandwidth product - A device parameter that indicates the maximum possible product of gain and bandwidth. The gain bandwidth product is equal to the *unity gain frequency* (f_{unity}) of the device.
gamma rays - High frequency electromagnetic radiation from radioactive particles.
ganged - Mechanical coupling of two or more capacitors, switches, potentiometers, or any other adjustable components so that adjusting one control will operate all.
gas - Any aeriform or completely elastic fluid which is not a solid or a liquid. Gasses are produced by heating a liquid beyond its boiling point.
geiger counter - Device used to detect nuclear particles.
generator - Device used to convert mechanical energy to electrical energy.
giga - Metric prefix for 1 billion (10^9).
ground - An intentional or accidental conducting path between an electrical system or circuit and the earth or some conducting body acting in place of the earth. A ground is often used as the common wiring point or reference in a circuit.
gunn diode - A semiconductor diode that utilizes the Gunn effect to produce microwave frequency oscillation or to amplify a microwave frequency signal. **half power point** - A frequency at which the power is 50% of maximum. This corresponds to 70.7% of maximum current or voltage.

H

h-parameters - (hybrid parameters) Transistor specifications that describe the component operating limits under specific circumstances.
half wave rectifier - A diode rectifier that converts AC to pulsating DC by eliminating either the negative or the positive alternation of each input AC cycle.
harmonic - Sine wave that is smaller in amplitude and some multiple of a fundamental frequency. Example: 880 Hz. is the second harmonic of 440 Hz., 880 Hz. is the third harmonic of 220 Hz.
hartley oscillator - An oscillator that uses a tapped inductor in the feedback network.
henry - The basic unit of inductance.
HERTZ - (Hz.) Unit of frequency. One hertz is equal to one cycle per second.
high fidelity - (Hi Fi)Sound reproduction equipment that reproduces sound as near to the original sound as possible
high-pass filter - A tuned circuit designed to pass all frequencies above a desnigated cut-off frequency. Frequencies below the cut-off frequency are rejected or attenuated
high tension - Lethal voltage in the kilovolt range and above.
hole - A gap left in the covalent bond when a valence electron gains sufficient energy to jump to the conduction band
hologram - Three-dimensional picture created with a laser.
holography - The science dealing with three-dimensional optical recording.
horizontally polarized wave - Electromagnetic wave that has the electric field in the horizontal plane.
hybrid circuit - Circuit that combines two technologies (passive and active or discrete and integrated components) onto one microelectronic circuit. Passive components are usual made by thin film techniques, while active components are made with semiconductor techniques.
hysteresis - Amount that the magnetization of a material lags the magnetizing force due to molecular friction. In Schmitt Trigger circuits, the difference between the upper and lower trigger points.

I

IC - Abbreviation for "integrated circuit"
IC voltage regulator - Three terminal device used to hold the output voltage of a power supply constant over a wide range of load variations.
IGFET - Insulated gate field effect transistor. Another name for a "MOSFET."
impedance - (Z) Measured in ohms it is the total opposition to the flow of current offered by a circuit. Impedance consists of the vector sum of resistance and reactance.
impedance coupling - Coupling of two signal amplifier circuits through the use of an impedance such as a inductor.
impedance matching - Matching the output impedance of a source to the input impedance of a load to attain maximum power transfer.
incandescence - State of a material when heated to the point where it emits light. (red hot or white hot).
induced voltage - Voltage generated in a conductor when subjected to a moving magnetic field.
inductance - Property of a circuit to oppose a change in current. The moving magnetic field produced by a change in current causes an induced voltage to oppose the original change.
inductive circuit - Circuit having greater inductive reactance than capacitive reactance.
inductive reactance - Opposition to the flow of AC current produced by an inductor. Measured in Ohms and varies in direct proportion

to frequency.
inductor - Length of conductor used to introduce inductance into a circuit. The conductor is usually wound into a coil to concentrate the magnetic lines of force and maximize the inductance. While any conductor has inductance, in common usage the term inductor usually refers to a coil.
infrared - [illegible] frequency [illegible] visible band
inhibit - To prevent an action or block data from passing.
in phase - When two or more waves of the same frequency have their positive and negative peaks occurring at the same time.
input impedance - Opposition to the flow of signal current at the input of a circuit or load.
insulated - When a non conducting material is used to isolate conducting materials from one another.
insulating material - Material that will prevent the flow of current due to its chemical composition.
insulation resistance - Resistance of insulating material. The greater the insulation resistance, the better the insulation.
integrated - When two or more components are combined into a circuit and then incorporated into a single package.
integrator - A device that approximates and whose output is proportional to an integral of the input signal. A low pass filter.
intermediate frequency amplifier - In a super heterodyne radio it amplifies a fixed frequency lower than the received radio frequency and higher than the audio frequency.
intermittent - A fault occurring at random intervals of time. Intermittent problems are often difficult to locate because of the random nature. They often don't occur when the technician is present.
internal resistance - Every source has some resistance in series with the output current. When current is drawn from the source some power is lost due to the voltage drop across the internal resistance. Usually called output impedance or output resistance.
intrinsic material - A semiconductor material with electrical properties essentially characteristic of ideal pure crystal.Essentially silicon or germanium crystal with no measurable impurities.
intrinsic stand-off ratio - A unijunction transistor (UJT) rating used to determine the firing potential of the device.
inverting amplifier - An amplifier that has a 180° phase shift from input to output.
inverting input - In an operational amplifier (op amp) the input that is marked with a minus sign. A signal applied at the inverting input will be given 180° phase shift between input and output.
ion - An atom with fewer electrons in orbit than the number of protons in the nucleus is a positive ion. An atom with a greater number of electrons in orbit than the number of protons in the nucleus is a negative ion.
ionized - Atoms become ionized when they gain or lose a valence electron.

J

j - A prefix used to indicate an imaginary number. (Operator j)
jack - Socket or connector into which a plug may be inserted.
JFET - Abbreviation for "Junction field effect transistor".
joule - The unit of work and energy.
junction - Contact or connection between two or more wires or cables. The area where the *p*-type material and *n*-type material meet in a semiconductor.
junction diode - diode. A semiconductor diode in which the rectifying characteristics occur at a junction between the *n*-type and *p*-type semiconductor materials.

K

kilo - Metric prefix for 1000. (10^3).
kilovolt-ampere - 1000 volts at 1 ampere.
kilowatt-hour - 1000 watts for 1 hour.
kilowatt-hour meter - A meter used by electric utility companies to measure the amount of electric power used by a customer.
kinetic energy - Energy associated with motion.
Kirchhoff"s current law - The sum of the currents flowing into a point in a circuit is equal to the sum of the currents flowing out of that same point.
Kirchhoff"s voltage law - The algebraic sum of the voltage drops in a closed path circuit is equal to the algebraic sum of the source voltages applied.
knee voltage - The voltage at which a curve joins two relatively straight portions of a characteristic curve. For a PN junction diode, the point in the forward operating region of the characteristic curve where conduction starts to increase rapidly. For a zener diode, the term is often used in reference to the zener voltage rating.

L

lag - Difference in time between two waveforms of the same frequency expressed in degrees. Example: One waveform lags another waveform by a certain number of degrees.

laminated core - Core made up of sheets of magnetic material insulated from one another by an oxide or varnish.
lamp - Device that produces light.
laser - Device that produces a very narrow intense beam of light. The name is an acronym for "light amplification by stimulated emission of radiation.
lead - The angle by which one alternating signal leads another in time. Opposite of lag. Also a wire that connects two points in a circuit.
lead-acid cell - Cell made up of lead plates immersed in a sulphuric acid electrolyte. An automobile battery usually consists of six lead-acid cells.
leakage - Term that describes stray flow of current through an insulator or dielectric.
LED - Abbreviation for "light emitting diode."
left-hand-rule - If fingers of the left hand are placed around a wire so that the thumb points in the direction of electron flow, the fingers will be pointing in the direction of the magnetic field being produced by the conductor.
Lenz's law - The current induced in a circuit due to a change in the magnetic field is so directed as to oppose the flux, or to exert a mechanical force to oppose the motion.
level detector - An op-amp circuit that compares two inputs and provides a DC output indicating the polarity relationship between the inputs. A comparator.
lie detector - Piece of electronic equipment also called a polygraph used to determine whether a person is telling the truth by looking for dramatic changes in blood pressure, body temperature, breathing rate, heart rate and skin moisture in response to questions.
light - Electromagnetic radiation in a band of frequencies that can be received by the human eye.
lifetime - The time from the creation of an electron hole pair until recombination occurs.
light-emitting diode - A semiconductor diode that converts electric energy into electromagnetic radiation at a visible and near infrared frequencies when its *pn* junction is forward biased.
limiter - Circuit or device that prevents some portion of its input from reaching the output. A clipper.
linear - Relationship between input and output in which the output varies in direct proportion to the input.
linear scale - A scale in which the divisions are uniformly spaced.
line regulation - The ability of a voltage regulator to maintain a constant voltage when the regulator input voltage varies.
live - Term used to describe a circuit or piece of equipment that is on and has current flow within it.
load - A source drives a load. Whatever component or piece of equipment is connected to a source and draws current from a source is a load on that source.
load current - Current drawn from a source by a load.
load impedance - Vector sum of reactance and resistance in a load.
loading effect - Large load impedance will draw a small load current and so loading of the source is small. (light load). A small load impedance will draw a large load current from the source. (heavy load).
load regulation - The ability of a voltage regulator to maintain a constant output voltage under varying load currents.
load resistance - Resistance of a load.
logic - Science of dealing with the principle and applications of gates, relays and switches.
loss - Term used to describe a decrease in power.
low pass filter - A tuned circuit designed to pass all frequencies below a designated cut-off frequency.

M

magnet - Body that can be used to attract or repel magnetic materials.
magnetic circuit breaker - Circuit breaker that is tripped or activated by use of an electromagnet.
magnetic coil - Spiral of a conductor which is called an electromagnet.
magnetic core - Material that exists in the center of the magnetic coil to either physically support the windings (non-magnetic material) or to concentrate the magnetic flux (magnetic material).
magnetic field - Magnetic lines of force traveling from the north pole to the south pole of a magnet.
magnetic flux - The magnetic lines of force produced by a magnet.
magnetic leakage - The passage of magnetic flux outside the path along which it can do useful work.
magnetic poles - Points of a magnet from which magnetic lines of force leave (north pole) and arrive (south pole).
magnetism - Property of some materials to attract or repel others.
magnetizing force - Also called magnetic field strength. It is the magneto motive force per unit length at any given point in a magnetic circuit.
magneto motive force - Force that produces a magnetic field.
majority carriers - The conduction band electrons in an n-type material and the valence band holes in a p-type material. Produced by pentavalent impurities in n-type material and trivalent impurities in p-type material.
matched impedance - Condition that occurs when the output impedance of a source is equal to the input impedance of a load.
matching - Connection of two components or circuits so that maximum power is transferred between the two.
maximum power transfer - A theorem that states that maximum power will be transferred from source to load when input impedance of the load equals the output impedance of the source.
Maxwell - Unit of magnetic flux. One maxwell equals one magnetic line of force.
mercury cell - Primary cell using a mercuric oxide cathode, a zinc anode and a potassium hydroxide electrolyte.
metal film resistor - A resistor in which a film of metal oxide or alloy is deposited on an insulating substrate.
metal oxide field effect transistor - (MOSFET) A field effect transistor in which the insulating layer between the gate electrode and the channel is a metal oxide layer.
metal oxide resistor - A metal film resistor in which an oxide of metal (such as tin) is deposited as a film onto the substrate.
meter - Any electrical or electronic measuring device. In the metric system, it is the unit of length equal to 39.37 inches.**meter FSD current** - Value of meter current needed to cause the needle to deflect to its maximum position (full scale deflection).
meter resistance - DC resistance of the meter's armature coil.
mica capacitor - Capacitor using mica as the dielectric.

microphone - Electro acoustic transducer that converts sound energy into electric energy.
microwave - Band of very short wavelength radio waves within the UHF, SHF and EHF bands.
mid-band gain - Gain of an amplifier operating within its bandwidth.
mid-point bias - An amplifier biased at the center of its DC load line.
mil - One thousandth of an inch (0.001 in.)
Miller's theorem - A theorem that allows you to represent a feedback capacitor as equivalent input and output shunt capacitors.
minority carrier - In semiconductor materials, holes in n-type material and valence band electrons in p-type material. Most minority carriers are produced when impurity atoms in the crystal lattice are bombarded with energy.
mismatch - A term used to describe a difference between the output impedance of a source and the input impedance of a load. A mismatch prevents the maximum transfer of power from source to load.
modulation - Process by which an information signal (audio for example) is used to modify some characteristic of a higher frequency wave known as a carrier (radio for example).
monostable multivibrator - A multivibrator with one stable output state. When triggered, the circuit output will switch to the unstable state for a predetermined period of time and then return to the stable state. A timer.
molecule - Smallest particle of a compound that still retains its characteristics.
MOSFET - Abbreviation for "metal oxide field effect transistor" also known as an "insulated gate field effect transistor). A field effect transistor in which the insulating layer between the gate electrode and the channel is a metal oxide layer.
moving coil microphone - Microphone that uses a moving coil within a fixed magnetic field. Dynamic microphone.
moving coil pick-up - Dynamic phonograph pick-up in which the stylus causes a coil to move within a fixed magnetic field.
moving coil loudspeaker - Loudspeaker that uses a moving "voice coil" placed within a fixed magnetic field. Audio frequency current in the voice coil causes movement which is mechanically transferred to the speaker cone. Also known as a dynamic loudspeaker.
multimeter - Electronic test equipment that can perform multiple tasks. Typically one capable of measuring voltage, current and resistance. More sophisticated modern digital multimeters also measure capacitance, inductance, current gain of transistors and/or anything else that can be measured electronically.
multiplier resistor - Resistor connected in series with a moving coil meter movement to extend the voltage ranges.
multi segmant display - Device made of several light emitting diodes arranged in a numeric or alphanumeric pattern. By lighting selected segments numeric or alphabet characters can be displayed.
multivibrator - A class of circuits designed to produce square waves or pulses. Astable multivibrators produce continuous pulses without an external stimulus or trigger. Monostable multivibrators produce a single pulse for some predetermined period of time only when triggered. Bistable multivibrators produce a DC output which is stable in either one of two states. Either high or low. An external stimulus or trigger is required for the bistable circuit to change states, either high to low or low to high.
mutual inductance - Ability of one inductor's lines of force to link with another inductor.

N

***n*-type semiconductor** - A semiconductor compound formed by doping an intrinsic semiconductor with a pentavalent element. An n-type material contains an excess of conduction band electrons.
negative - Terminal that has an excess of electrons.
negative charge - A charge that has more electrons than protons
negative feedback - A feedback signal 180° out of phase with an amplifier input signal. Used to increase amplifier stability, bandwidth and input impedance. Also reduces distortion.
negative ground - A system where the negative terminal of the source is connected to the system's metal chassis.
negative ion - An atom having a greater number of electrons in orbit than there are protons in the nucleus.
negative resistance - A resistance such that when the current through it increases the voltage drop across the resistance decreases.
negative temperature coefficient - A term used to describe a component whose resistance or capacitance decreases when temperature increases.
neon bulb - Glass envelope filled with neon gas which when ionized by an applied voltage will glow red.
network - Combination of interconnected components, circuits or systems.
neutral - A terminal, point or object with balanced charges. Neither positive or negative.
neutral atom - An atom in which the number of negative charges (electrons in orbit) is equal to the number of positive charges (protons in the nucleus).
neutral wire - The conductor of a polyphase circuit or a single-phase three wire circuit that is intended to have a ground potential. The potential difference between the neutral and each of the other conductors are approximately equal in magnitude and equally spaced in phase.
neutron - Subatomic particle in the nucleus of an atom and having no electrical charge.
nickel-cadmium cell - A secondary cell that uses a nickel oxide positive electrode and a cadmium negative electrode.
node - Junction or branch point in a circuit.
noise - Unwanted electromagnetic radiation within an electrical or mechanical system.
An operational amplifier circuit having no phase inversion between the input and output.
non-inverting input - The terminal on an operational amplifier that is identified by a plus sign.
non-linear scale - A scale in which the divisions are not equally spaced.
normal closed - Designation which states that the contacts of a switch or relay are closed or connected when at rest. When activated, the contacts open or separated.
normally open - Designation which states that the contacts of a switch or relay are normally open or not connected. When activated the contacts close or become connected.
north pole - Pole of a magnet out of which magnetic lines of force are assumed to originate.
Norton's theorem - Any network of voltage sources and resistors can be replace by a single current source in parallel with a single resistor.
notch filter - A filter which blocks a narrow band of frequencies and passes all frequencies above and below the band.

npn transistor - A bipolar junction transistor in which a p-type base element is sandwiched between an n-type emitter and an n-type collector.
nucleus - Core of an atom. The nucleus contains both positive (protons) and neutral (neutrons) subatomic particles.

O

octave - Interval between two sounds whose fundamental frequencies differ by a ratio of 2 to 1. 440 Hz. is one octave above 220 Hz.
offset null - Op amp control pins used to eliminate the effects of internal component voltages on the output of the device.
ohm - Unit of resistance symbolized by the Greek capital letter omega (W).
ohmmeter - Device used to measure electrical resistance.
Ohm's law - Relationship between voltage, current and resistance. Ohm's law states that current in a resistance varies in direct proportion to voltage applied and inversely proportional to resistance.
Ohms per volt - Refers to a value of ohms per volt of full scale defection for a moving coil meter movement. The number of ohms per volt is the reciprocal of the amount of current required to produce full scale deflection of the needle. A meter requiring 50 microamps for full scale deflection has an internal resistance of 20 kW per volt. The higher the ohms per volt rating, the more sensitive the meter.
one-shot - Monostable multivibrator.
op-amp - Abbreviation for operational amplifier.
open loop gain - Gain of an amplifier when no feedback is present.
open loop mode - An amplifier circuit having no means of comparing the output with the input. (No feedback.)
operational amplifier - A high gain DC amplifier that has a high input impedance and a low output impedance. Op-amps are the most basic type of linear integrated circuits.
oscillate - To produce a continuous output waveform without an input signal present.
oscillator - An electronic circuit that produces a continuous output waveform with only DC applied.
oscilloscope - An instrument used to display a signal graphically. Shows signal amplitude, period and wave shape in addition to any DC voltage present. A multiple trace oscilloscope can show two or more waveforms at the same time for phase comparison and timing measurements.
out of phase - When the maximum and minimum points of two or more waveshapes do not occur at the same time.
output - Terminal at which a component, circuit or piece of equipment delivers current, voltage or power.
output impedance - Impedance measured across the output terminals of a device without a load connected.
output power - Amount of power a component, circuit or system can deliver to a load.
overload - Condition that occurs when the load is greater than the system was designed to handle. (Load resistance too small, load current too high.) Overload results in waveform distortion and/or overheating.
overload protection - Protective device such as a fuse or circuit breaker that automatically disconnects a load when current exceeds a predetermined value.

P

paper capacitor - Fixed capacitor using oiled or waxed paper as a dielectric.
parallel - Circuit having two or more paths for current flow. Also called shunt.
parallel resonant circuit - Circuit having an inductor and a capacitor in parallel with one another. Circuit offers a high impedance at resonant frequency. Sometimes called a "tank circuit."
pass band - The range of frequencies that will be passed and amplified by a tuned amplifier. Also the range of frequencies passed by a band pass filter.
passive component - Component that does not amplify a signal. Resistors and capacitors are examples.
passive filter - A filter that contains only passive or non amplifying components.
passive system - System that emits no energy. It only receives. It does not transmit or reveal its position.
peak - Maximum or highest amplitude level.
peak inverse voltage - (PIV) The maximum rated value of a AC voltage acting in the direction opposite to that in which a device is designed to pass current.
peak to peak - Difference between the maximum positive and maximum negative values of an AC waveform.
pentavalent element - Element whose atoms have five valence electrons. Used in doping intrinsic silicon or germanium to produce n-type semiconductor material. Most commonly used pentavalent materials are arsenic and phosphorus.
percent of regulation - The change in output voltage that occurs between no-load and full-load in a DC voltage source. Dividing this change by the full-load value and multiplying the result by 100 gives percent regulation.
percent of ripple - The ratio of the effective rms value of ripple voltage to the average value of the total voltage. Expressed as a percentage.
period - Time to complete one full cycle of a periodic or repeating waveform.
permanence - Magnetic equivalent of magnetic inductance and consequently equal to the reciprocal of reluctance, just as conductance is equal to the reciprocal of resistance.
permanent magnet - Magnet normally made of hardened steel that retains its magnetism indefinitely.
permeability - Measure of how m how much better a material is as a path for magnetic lines of force with respect to air which has a permeability of one. Symbolized by the Greek lower case letter mu (m)
phase - Angular relationship between two waves.
phase angle - Phase difference between two or more waves, normally expressed in degrees.
phase shift - Change in phase of a wave form between two points, expressed as degrees of lead or lag.
phase shift oscillator - An oscillator that uses three RC networks in its feedback path to produce the 180° phase shift required for oscillation.
phase splitter - Circuit that takes a single input signal and produces two output signals that are 180° apart in phase.
phonograph - Piece of equipment used to reproduce sound stored on a disk called a phonograph record.

phosphor - Luminescent material applied to the inner face of a cathode ray tube that when bombarded with electrons will emit light of various colors.<olors.< p=""></olors.
photoconductive cell - Material whose resistance decreases or conductance increases when exposed to light.
photoconduction - A process by which the conductance of a material is change by incident electromagnetic radiation in the visible light spectrum.
photo detector - Component used to detect or sense light.
photodiode - A semiconductor diode that varies its electrical characteristics in response to illumination.
photometer - Instrument used to measure light intensity.
photon - Discrete portion of electromagnetic energy. A small packet of light.
photoresistor - Also known as a photoconductive cell or light dependent resistor. (LDR) A device whose resistance decreases with exposure to light.

photovoltaic cell - Component commonly called a solar cell used to convert light energy into electrical energy.
pi - Value representing the ratio between the circumference and diameter of a circle and equal to approximately 3.142.
pierce oscillator - A variation of the colpitts oscillator. This oscillator uses a quartz crystal in place of the inductor found in the colpitts oscillator feedback network. The crystal maintains a highly stable output frequency.
piezoelectric crystal - Crystal material that will generate a voltage when mechanical pressure is applied and conversely will undergo mechanical stress when subjected to a voltage.
piezoelectric effect - The production of a voltage between opposite sides of a piezoelectric crystal as a result of pressure or twisting. Also the reverse effect which the application of a voltage to opposite sides causes a deformation to occur at the frequency of the applied voltage. (Converts mechanical energy into electrical energy and electrical energy into mechanical energy.)
pinch-off region - A region on the characteristic curve of a FET in which the gate bias causes the depletion region to extend completely across the channel.
plastic film capacitor - Capacitor in which alternate layers of aluminum foil are separated by thin films of plastic dielectric.
plate - Conductive electrode in either a capacitor or battery. In vacuum tube technology, it is the name given to the anode.
plug - Movable connector that is normally connected into a socket or jack.
pnp transistor - A bipolar junction transistor with an n-type base and p-type emitter and collector.
pole - In an active filter, a single RC circuit. A one pole filter has one capacitor and one resistor. A two pole filter has two RC circuits and so on.
polar coordinates - Either of two numbers that locate a point in a plane by its distance from a fixed point and the angle this line makes with a fixed line.
polarity - Term used to describe positive and negative charges.
polarized - A component which must be connected in correct polarity to function and/or d/or prevent destruction. Example: Electrolytic capacitor.
positive - Polarity of point that attracts electrons as opposed to negative which supplies electrons.
positive charge - A charge that exists in a body that has fewer electrons than protons.
positive feedback - A feedback signal that is in phase with an amplifier input signal. Positive feedback is necessary for oscillation to occur.
positive ground - A system whereby the positive terminal of the source is connected to the system's conducting chassis.
positive ion - Atom that has lost one or more valence electrons resulting in a net positive charge.
potential difference - Voltage difference between two points which will cause current to flow in a closed circuit.
potential energy - Energy that has potential to do work because of its position relative to others.
potentiometer - A variable resistor with three terhree terminals. Mechanical turning of a shaft can be used to produce variable resistance and potential. Example: A volume control is usually a potentiometer.
power - Amount of energy converted by a circuit or component in a unit of time, normally seconds. Measured in units of watts. (joules/second).
power amplifier - An amplifier designed to deliver maximum power output to a load. Example: In an audio system, it is the power amplifier that drives the loudspeaker.
power derating factor - A transistor rating that tells how much the maximum allowable value of P_D decreased for each 1°C rise in ambient temperature.
power dissipation - Amount of heat energy generated by a device in one second when current flows through it.
power factor - Ratio of actual power to apparent power.
power loss - Ratio of power absorbed to power delivered.
power supply - Electrical equipment used to deliver either AC or DC voltage.
power supply rejection ratio - A measure of an op-amps ability to maintain a constant output when the supply voltage varies.
primary - First winding of a transformer. Winding that is connected to the source as opposed to secondary which is a winding connected to a load.
primary cell - Cell that produces electrical energy through an internal electrochemical action. Once discharged a primary cell cannot be reused.
printed circuit board - Insulating board containing conductive tracks for circuit connections.
programmable UJT - Unijunction transistor with a variable intrinsic stand-off ratio.
propagation - Traveling of electromagnetic, electrical or sound waves through a medium.
propagation delay - Time required for a signal to pass through a device or circuit.
propagation time - Time required for a wave to travel between two points.
protoboard - Board with provision for attaching components without solder. Also called a breadboard. Primarily used for constructing experimental circuits.
proton - Sub atomic particle within the nucleus of an atom. Has a positive charge.
pulse - Rise and fall of some quantity (usually voltage) for a period of time.
pulse fall time - Time for a pulse to decrease from 90% of its peak value to 10% of its peak value.
pulse repetition frequency - The number of times per second that a pulse is transmitted. Pulse rate.

pulse repetition time - Time interval between the start of two consecutive pulses.
pulse rise time - Time required for a pulse to increase from 10% of its peak value to 90% of its peak value.
pulse width - Time interval between the leading edge and trailing edge of a pulse at a point where the amplitude is 50% of the peak value.
push-push amplifier - Amplifier using two active devices operating 180° apart.
Pythagorean theorem - A theorem in geometry: The square of the hypotenuse of a right triangle equals the sum of the squares of the other two sides. Used in phasor analysis for vector analysis of AC circuits

Q

Q - Quality factor of an inductor or capacitor. It is the ratio of a component's reactance (energy stored) to its effective series resistance (energy dissipated). For a tuned circuit, a figure of merit used in bandwidth calculations. Q is the ratio of reactive power to resistive power in a tuned circuit. Also the symbol for charge in coulombs (Q for quantity).
quiescent - At rest. For an amplifier the term is used to describe a condition with no active input signal.
quiescent point - (Q point) A point on the DC load line of a given amplifier that represents the quiescent (no signal) value of output voltage and current for the circuit.

R

radar - Acronym for "radio detection and ranging" A system that measures the distance and direction of objects.
radio astronomy - Branch of astronomy that studies the radio waves generated by celestial bodies and uses these emissions to obtain information about them.
radio broadcast - Transmission of music, voice and other information on radio carrier waves that can be received by the general public.
radio communication - Term used to describe the transfer of information between two or more points by use of radio or electromagnetic waves.
radio-frequency amplifier - Amplifier having one or more active devices to amplify radio signals.
radio-frequency generator - Generator capable of supplying RF energy at any desired frequency in the radio-frequency spectrum
radio-frequency probe - Probe used in conjunction with an AC meter to measure radio-frequency signals.
RC - Abbreviation for "resistance capacitance" also abbreviation for "radio controlled" as in "RC model airplanes."
RC time constant - Product of resistance and capacitance in seconds.
reactance - Symbol "X". Opposition to current flow without the dissipation of energy. Example: The opposition provided by inductance or capacitance to AC current.
reactive power - Also called imaginary power or wattles power. It is the power value in "volt amps" obtained from the product of source voltage and source current in a reactive circuit.
real number - Number having no imaginary part.
receiver - Unit or piece of equipment used to receive information.
recombination - Process by which a conduction band electron gives up energy (in the form of heat or light) and falls into a valence band hole.
rectangular coordinates - A Cartesian coordinate of a Cartesian coordinate system whose straight-line axes or coordinate planes are perpendicular.
rectangular wave - Also known as a pulse wave. A repeating wave that only operates between two levels or values and remains at one of these values for a small amount of time relative to the other value.
rectification - Process that converts alternating current to direct current.
rectifier - Diode circuit that converts alternating current into pulsating direct current.
reed relay - Relay consisting of two thin magnetic strips within a glass envelope. When a coil around the envelope is energized, the relay's contacts snap together making a connection between leads attached to the reed strips.
regenerative feedback - Positive feedback. Feedback from the output of an amplifier to the input such that the feedback signal is in phase with the input signal. Used to produce oscillation.
regulated power supply - Power supply that maintains a constant output voltage under changing load conditions.
regulator - Device or circuit that maintains a desired output under changing conditions.
relay - Electromechanical device that opens or closes contacts when a current is passed through a coil.
relative - Not independent. Compared with or with respect to some other measured quantity.
relaxation oscillator - Free running circuit that outputs pulses with a period dependent or one or more RC time constants.
reluctance - Resistance to the flow of magnetic lines of force.
remanence - Amount a material remains magnetized after the magnetizing force has been removed.

residual magnetism - Magnetism remaining in the core of an electromagnet after the coil current is removed.
resistance - Symbolized "R" and measured in ohms. Opposition to current flow and dissipation of energy in the form of heat.
resistive power - Amount of power dissipated as heat in a circuit containing resistive and reactive components. True power as opposed to [illegible] power.
resistive t[illegible] re[illegible] (R[illegible]) [illegible]erature [illegible] um)
that will p[illegible] relatively linear increase in resistance as temperature increases.
receptivity - [illegible]easure of a material's resistance to current flow.
resistor - Component made of material that opposes flow of current and therefore has some value of resistance.
resistor color code - Coding system of colored stripes on a resistor to indicate the resistor's value and tolerance.
resonance - Circuit condition that occurs at the frequency where inductive reactance (X_L) equals capacitive reactance (X_C).
reverse bias - Bias on a PN junction that allows only leakage current (minority carriers) to flow. Positive polarity on the n-type material and negative polarity to the p-type material.
reverse breakdown voltage - Amount of reverse bias that will cause a PN junction to break down and conduct in the reverse direction.
reverse current - Current through a diode when reverse biased. An extremely small current also referred to as leakage.
reverse saturation current - Reverse current through a diode caused by thermal activity. This current is not affected by the amount of reverse bias on the component, but does vary with temperature.
RF - Abbreviation for "radio frequency."
rheostat - Two terminal variable resistor used to control current.
right angle triangle - Triangle having a 90° or square corner
ripple frequency - Frequency of the ripple present in the output of a DC source.
ripple voltage - The small variations in Dc voltage that remain after filtering in a power supply.
rise time - Time for the leading edge of a pulse to rise from 10% of its peak value to 90% of its peak value.
RL differentiator - An RL circuit whose output voltage is proportional to the rate of change of the input voltage.
RL filter - Selective circuit of resistors and inductors that offers little or no opposition to certain frequencies while blocking or attenuating other frequencies.
RL integrator - RL circuit with an output proportionate to the integral of the input signal.
rms - Abbreviation for "root mean square"
rms value - Rms value of an AC sine wave is 0.707 times the peak value. This is the effective value of an AC sine wave. The rms value of a sine wave is the value of a DC voltage that would produce the same amount of heat in a heating element.
roll-off rate - Rate of change in gain when an amplifier is operated outside of its bandwidth.
rotary switch - Electromechanical device that has a rotating shaft connected to one terminal capable of making or breaking a connection to one or more other terminals.
R-2R ladder - Network or circuit composed of a sequence of L networks connected in tandem. Circuit used in digital to analog converters.

S

saturation - Condition in which a further increase in one variable produces no further increase in the resultant effect. In a bipolar junction transistor, the condition when the emitter to collector voltage is less than the emitter to base voltage. This condition puts forward bias on the base to collector junction.
sawtooth wave - Repeating waveform that rises from zero to maximum value linearly drops back to zero and repeats. A ramp waveform.
scale - Set of markings used for measurement.
schematic diagram - Illustration of an electrical or electronic circuit with the components represented by their symbols.
Schmitt trigger - Circuit to convert a given waveform to a square wave output.
Schottky diode - High speed diode that has very little junction capacitance. Also known as a "hot-carrier diode" or a "surface-barrier diode."
scientific notation - Numbers entered as a number from one to ten multiplied by a power of ten. Example: $8765 = 8.765 \times 10^3$.
secondary - Output winding of a transformer. Winding that is connected to a load.
secondary cell - Electrolytic cell used to store electricity. Once discharged may be restored by recharging by putting current through the cell in the direction opposite to that of discharge current.
selectivity - Characteristic of a circuit to discriminate between wanted and unwanted signals.
self biasing - Gate bias for a field effect transistor in which source current through a resistor produces the voltage for gate to source bias.
self inductance - Property that causes a counter electromotive force to be produced in a conductor when the magnetic field expands or collapses with a change of current.
semiconductor - An element which is neither a good conductor or a good insulator, but rather lies somewhere between the two. Characterized by a valence shell containing four electrons. Silicon, germanium and carbon are the semiconductors most frequently used in electronics.

series circuit - Circuit in which the components are connected end to end so that current has only one path to follow through the circuit.
series parallel network - Network that contains components connected in both series and parallel.
series resonance - Condition that occurs in a series LC circuit at the frequency where inductive reactance equals capacitive reactance. Impedance is minimum, current is maximum limited only by resistance in the circuit.
seven segment display - Device made of several light emitting diodes arranged in a numeric or alphanumeric pattern. By lighting selected segments, numeric or alphabetic characters can be displayed.
shells or bands - Orbital paths containing a group of electrons having a common energy level.
shield - Metal grounded cover used to protect a wire, component or piece of equipment from stray magnetic and/or electric fields.
short circuit - Also called a short. Low resistance connection between two points in a circuit typically causing excessive current.
shunt resistor - Resistor connected in parallel or in shunt with another component or circuit.

signal - Electrical quantity that conveys information.
signal to noise ratio - Ratio of the magnitude of the signal to the magnitude of noise usually expressed in decibels.
silicon - (Si) Non metallic element (atomic number 14) used in pure form as a semiconductor.
silicon-controlled rectifier - (SCR) Three terminal active device that acts as a gated diode. The gate terminal is used to turn the device on allowing current to pass from cathode to anode.
silicon controlled switch - An SCR with an added terminal called an anode gate. A positive pulse either at the anode gate or the cathode gate will turn the device on.
silicon dioxide - Glass like material used as the gate insulating material in a MOSFET.
silicon transistor - A bipolar junction transistor using silicon as the semi conducting material.
silver - (Ag) Precious metal that does not easily corrode and is more conductive than copper.
silver mica capacitor - Mica capacitor with silver deposited directly onto the mica sheets instead of using conductive metal foil.
silver solder - Solder composed of silver, copper and zinc. Has a melting point lower than pure silver, but higher than lead-tin solder.
simplex - Communication in only one direction at a time. Example: FAX.
simulcast - Broadcasting a program simultaneously in two different forms, for example a program broadcast in both AM and FM.
sine - Sine of an angle of a right angle triangle is equal to the opposite side divided by the hypotenuse.
sine wave - Wave whose amplitude is the sine of a linear function of time. It is plotted on a graph that plots amplitude against time or radial degrees relative to the angular rotation of an alternator.
single in-line package - Package containing several electronic components (generally resistors) with a single row of connecting pins.
single pole double throw - (SPDT) Three terminal switch in which one terminal can be connected to either one of the other terminals.
single pole single throw - (SPST) Two terminal switch or relay that can open or close one circuit.
single sideband - (SSB) AM radio communication technique in which the transmitter suppresses one sideband and therefore transmits only a single sideband.
single throw switch - Switch containing only one set of contacts which can be either opened or closed.
sink - Device such as a load that consumes power or conducts away heat.
sintering - Process of bonding either a metal or powder by cold pressing it into a desired shape and then heating to form a strong cohesive body.
sinusoidal - Varying in proportion to the sine of an angle or time function. AC voltage in which the instantaneous value is equal to the sine of the phase angle times the peak value.
SIP - Abbreviation for "single in-line package."
skin effect - Tendency of high-frequency (rf) currents to flow near the surface layer of a conductor.
slew rate - The maximum rate at which the output voltage of an op-amp can change.
slide switch - Switch having a sliding button, bar or knob.
slow acting relay - Slow operating relay that when energized may not pull up the armature for several seconds.
slow-blow fuse - Fust that can withstand a heavy current (up to ten times its rated value) for a small period of time before it opens.
snap switch - Switch containing a spring under tension or compression that causes the contacts to come together suddenly when activated.
SNR - Abbreviation for "signal to noise ratio."
soft magnetic material - Ferromagnetic material that is easily demagnetized.
software - Program of instructions that directs the operation of a computer.
solar cell - Photovoltaic cell that converts light into electric energy. Especially useful as a power source for space vehicles.
solder - Metallic alloy used to join two metal surfaces.
soldering - Process of joining two metallic surfaces to make an electrical contact by melting solder (usually tin and lead) across them.
soldering iron - Tool with an internal heating element used to heat surfaces being soldered to the point where the solder becomes molten.
solenoid - An air core coil. Equipped with a movable iron core the solenoid will produce motion. As a result of current through the coil the iron core is pulled into the center of the winding. When the coil is deenergized, a spring pulls the movable core away from the center of the winding. Mechanical devices connected to the movable core are made to move as a result of current through the coil. Example: Electric door locks on some automobiles.
solid conductor - Conductor having a single solid wire instead of strands of fine wire twisted together.
solid state - Pertaining to circuits where signals pass through solid semiconductor material such as transistors and diodes as opposed to vacuum tubes where signals pass through a vacuum.
sonar - Acronym for "sound navigation and ranging." A system using reflected sound waves to determine the position of some target.
sonic - Pertaining to sound.
sound wave - Pressure waves propagated through air or other plastic media. Sound waves are generally audible to the human ear if the frequency is between approximately 20 and 20,000 vibrations per second. (hertz)
source - Device that provides signal power or energy to a load.
source follower - FET amplifier in which signal is applied between gate and drain with output taken between source and drain. Also called "common drain."

source impedance - Impedance through which output current is taken from a source.
south pole - Pole of a magnet into which magnetic lines of force are assumed to enter.
spark - Momentary discharge of electrical energy due to ionization of air or other dielectric material separating two charges.
SPDT - Single pole double throw.
speaker - Also called "loudspeaker." Transducer that converts electrical energy into mechanical energy at audio frequencies.
spectrum - Arrangement or display of light or other forms of electromagnetic radiation separated according to wavelength, energy or some other property.
spectrum analyzer - Instrument used to display the frequency domain of a waveform plotting amplitude against frequency.
speed-up capacitor - Capacitor added to the base circuit of a BJT switching circuit to improve the switching time of the device.
SPST - Abbreviation for "single pole single throw."
square wave - Wave that alternates between two fixed values for an equal amount of time.
static - Crackling noise heard on AM radio receivers. Caused by electric storms or electric devices.
static electricity - Stationary electric charges.
static reverse current - Reverse current through a zener diode when the reverse voltage across the diode is less than the zener voltage rating of the device.
stator - Stationary part of some rotary device such as a variable capacitor.
step-down transformer - Transformer in which the output AC voltage is less than the input AC voltage.
step-up transformer - Transformer in which the output AC voltage is greater than the input AC voltage.
stereo sound - System in which reproduced sound is delivered through two or more channels to give a sense of direction to the source.
stop band - Range of frequencies outside the pass band of a tuned amplifier.
storage time - In a BJT switching circuit, it is the time required for collector current to drop from 100% to 90% of its maximum value.
stranded conductor - Conductor composed of a group of strands of wire twisted together.
stray capacitance - Undesirable capacitance that exists between two conductors such as two leads or one lead and a metal chassis.
subassembly - Components contained in a unit for convenience in assembling or servicing equipment.
subatomic - Particles such as electrons, protons and neutrons that are smaller than atoms.
substrate - Mechanical insulating support upon which a device is fabricated.
summing amplifier - An op-amp circuit whose output is proportional to the sum of its instantaneous voltages.
superconductor - Metal such as lead or niobium that, when cooled to within a few degrees of absolute zero, can conduct current with no resistance.
super heterodyne receiver - Radio receiver that converts all radio frequencies to a fixed intermediate frequency to maximize gain and bandwidth before demodulation.
super high frequency - (SHF) Frequency band between 3 GHz and 30 GHz. So designated by Federal Communications Commission (FCC).
superposition theorem - Theorem designed to simplify networks containing two or more sources. It states that in a network containing more than one source, the current at any one point is equal to the algebraic sum of the currents produced by each source acting separately.
supply voltage - Voltage provided by a power source.
surface-barrier diode - (Schottky diode) High speed diode that has very little junction capacitance. Also known as a "hot-carrier diode."
surface leakage current - Diode reverse current that passes along the surface of the semiconductor materials.
surge current - High charging current that flows into a power supply filter capacitor as the power is first turned on.
sweep generator - Test instrument designed to produce a voltage that continuously varies in frequency over a band of frequencies. Used as a source to display frequency response of a circuit on an oscilloscope.
switch - Electrical device having two states, on (closed) or off (open). Ideally having zero impedance when closed and infinite impedance when open.
switching transistor - transistor designed to change rapidly between saturation and cut-off.
synchronization - Also called sync. Precise matching of two waves or functions.
synchronous - Two or more signals in step or in phase.
sync pulse - Pulse used as a reference for synchronization.
system - Combination of several pieces of equipment to perform in a particular manner.

T

tank circuit - Parallel resonant circuit containing only a coil and a capacitor. Both the coil and capacitor store electrical energy for part of each cycle.
tantalum capacitor - Electrolytic capacitor having a tantalum foil anode. Able to have a large capacity in a small package.
tap - Electrical connection to some point other than at the ends of a resistor or inductor.
tapered - Non unifrom distribution of resistance per unit length throughout the element of a potentiometer.
technician - Expert in troubleshooting circuit and system malfunctions. Along with a thorough knowledge of test equipment and how to use it to diagnose problems, the technician is also familiar with how to repair or replace faulty components. Technicians basically translate theory into action.
telegraphy - Communication between two points by sending and receiving a series of current pulses either through wire or by radio.
telemetry - Transmission of instrument readings to a remote location either by wire or by radio.
telephone - Apparatus designed to convert sound waves into electrical waves which are sent to and reproduced data distant point.
telephone line - Wires existing between subscribers and central stations in a telephone system.
telephony - Telecommunications system involving the transmission of speech information, allowing two or more persons to communicate verbally.
teletypewriter - Electric typewriter that like a tele-printer can produce coded signals corresponding to the keys pressed or print characters corresponding to the coded signals received.

television - System that converts both audio and visual information into corresponding electrical signals which are then transmitted through wires or by radio waves to a receiver which reproduces the original information.
telex - Teletypewriter exchange service.
temperature coefficient of frequency - Rate at which frequency changes with temperature.
tera - (T) Metric [illegible] that represents 10^{12}.
terminal - [illegible] are made.
tesla - (T) [illegible] (1 tesla = 1 Wb/m^2).
test - Sequence of operations intended to verify the correct operation or malfunctioning of a piece of equipment or system.
thermal relay - Relay activated by a heating element.
thermal runaway - Problem that can develop in an amplifier when an increase in temperature causes an increase in collector current. The increase in collector current causes a further increase in temperature and so on. Unless the circuit is designed to prevent this condition, the device can be driven into saturation.

thermal stability - The ability of a circuit to maintain stable characteristics in spite of increased temperature.
thermistor - Temperature sensitive semiconductor that has a negative temperature coefficient of resistance. As temperature increases, resistance decreases.
thermocouple - Temperature transducer consisting of two dissimilar metals welded together at one end to form a junction that when heated will generate a voltage.
thermometry - Relating to the measuring of temperature.
thermostat - Device that opens or closes a circuit in response to changes in temperature.
Thevenin's theorem - Theorem that replaces any complex network with a single voltage source in series with a single resistance.
thick-film capacitor - Capacitor consisting of two thick-film layers of conductive film separated by a deposited thick-layer dielectric film.
thick film resistor - Fixed value resistor consisting of thick-film resistive element made from metal particles and glass powder.
thin film capacitor - Capacitor in which both the electrodes and the dielectric are deposited in layers on a substrate.
thin film detector - (TFD) A temperature detector containing a thin layer of platinum and used for precise temperature readings.
three phase supply - AC supply that consists of three AC voltages 120° out of phase with each other.
threshold - Minimum point at which an effect is produced or detected.
threshold voltage - For an enhancement MOSFET, the minimum gate source voltage required for conduction of source drain current.
thyristor - A term used to classify all four layer semiconductor devices. SCRs and triacs are examples of thyristors.
time constant - (t) Time required for a capacitor in an RC circuit to charge to 63% of the remaining potential across the circuit. Also time required for current to reach 63% of maximum value in an RL circuit. Time constant of an RC circuit is the product of R and C. Time constant of an RL circuit is equal to inductance divided by resistance.
time division multiplexing - (TDM) Transmission of two or more signals on the same path, but at different times.
time-domain analysis - A method of representing a waveform by plotting amplitude over time.
toggle switch - Spring loaded switch that is put in one of two positions either on or off.
tolerance - Permissible deviation from a specified value normally expressed as a percentage.
TO package - Cylindrical, metal can type of package of some semiconductor components.
toroidal coil - Coil wound on a doughnut shaped core.
transconductance - Also called mutual conductance. Ratio of a change in output current to the change in input voltage that caused it.
transducer - Device that converts energy from one form to another.
transformer - Inductor with two or more windings. Through mutual inductance, current in one winding called a primary will induce current into the other windings called secondaries.
transformer coupling - Also called inductive coupling. Coupling of two circuits by means of mutual inductance provided by a transformer.
transistor - Term derived from "transfer resistor." Semiconductor device that can be used as an amplifier or as an electronic switch.
transmission - Sending of information.
transmission line - Conducting line used to transmit signal energy between two points.
transmitter - Equipment used to achieve transmission.
triac - Bidirectional gate controlled thyristor similar to an SCR, but capable of conducting in both directions. Provides full wave control of AC power.
triangular wave - A repeating wave that has equal positive going and negative going ramps. The ramps have linear rates of change with time.
trigger - Pulse used to initiate a circuit action.
triggering - Initiation of an action in a circuit which then functions for a predetermined time. Example: The duration of one sweep in a cathode ray tube.
trimmer - Small value variable capacitor, resistor or inductor used to fine tune a larger value.
trivalent element - One having three valence electrons. Used as an impurity in semiconductor material to produce p-type material. Most commonly used trivalent elements are: Aluminum, Gallium and Boron.
troubleshooting - Systematic approach to locating the cause of a fault in an electronic circuit or system.
tuned circuit - Circuit that can have its component values adjusted so that it responds to one selected frequency and rejects all others.
tunnel diode - Heavily doped junction diode that has negative resistance in the forward direction of its operating range.
turn-off time - Sum of storage time and fall time.
turn-on time - Sum of delay time and rise time.
turns ratio - Ratio of the number of turns in the secondary winding of a transformer to the number of turns in the primary winding.
two phase - Two repeating waveforms having a phase difference of 90°.

U

UHF - Abbreviation for "ultra high frequency.

ultrasonic - Signals that are just above the frequency range of human hearing of approximately 20 kHz.
uncharged - Material having atoms with the same number of electrons in orbit as the number of protons in the nucleus. Having no electrical charge.
unijunction transistor - Three terminal device that acts as a diode with its own internal voltage divider biasing circuit.
unity gain frequency - Frequency of operation for a device where the gain of the component drops to unity.

V

VA - Abbreviation for "volt ampere"
vacuum tube - Electron tube evacuated to such a degree that its electrical characteristics are essentially unaffected by the presence of residual gas or vapor. Have been essentially replaced by transistors for amplification and rectification. Cathode ray tubes are still used as display devices.
valence shell - The outermost electron shell for a given atom. The number of electrons in this shell determines the conductivity of the atom.
varactor diode - PN junction diode with a high junction capacitance when reverse biased. Most often used as a voltage controlled capacitor. The varactor is also called: varicap, tuning diode and epicap.
variable capacitor - Capacitor whose capacitance can be change by varying the effective area of the plates or the distance between the plates.
variable resistor - Resistor whose resistance can be changed by turning a shaft. See also "potentiometer and rheostat."
VCR - Abbreviation for "video cassette recorder."
vector - Quantity having both magnitude and direction. Normally represented by a line. Length of the line indicates magnitude and orientation indicates direction.
vector diagram - Arrangement of vectors showing phase relationships between two or more AC quantities of the same frequency.
vertical MOS - Enhancement type MOSFET designed to handle much greater values of drain current than standard E-MOSFET.
very high frequency - (VHF) Electromagnetic frequency band from 30 MHz to 300 MHz.
very low frequency - (VLF) Frequency band from 3 kHz to 30 kHz.
video - Relating to any picture or visual information. From the latin word meaning "I see."
video amplifier - Amplifier having one or mare stages designed to amplify video signals.
virtual ground - Point in a circuit that is always at approximately ground potential. Often a ground for voltage, but not for current.
voice coil - Coil attached to the diaphragm of a moving coil loudspeaker. The coil is moved through an air gap between magnetic pole pieces.
voice synthesizer - Synthesizer that can simulate speech by stringing together phonemes.
volt - Unit of potential difference or electromotive force. One volt is the potential difference needed to produce one ampere of current through a resistance of one ohm.
voltage - (V) Term used to designate electrical pressure or force that causes current to flow.
voltage amplifier - Amplifier designed to build up signal voltage. By design amplifiers can have a large voltage gain or a large current gain or a large power gain. Voltage amplifiers are designed to maximize voltage gain often at the expense of current gain or power gain.
voltage controlled oscillator - Oscillator whose output frequency depends on an input control voltage.
voltage divider - Fixed or variable series resistor network connected across a voltage to obtain a desired fraction of that voltage.
voltage divider biasing - Biasing method used with amplifiers in which two series resistors connected across a source. The junction of the two biasing resistors provides correct bias voltage for the amplifier.
voltage drop - Voltage or difference in potential developed across a component due to current flow.
voltage feedback - Feedback configuration where a portion of the output voltage is fed back to the input of an amplifier.
voltage follower - Operational amplifier circuit characterized by a high input impedance, low output impedance and unity voltage gain. Used as a buffer between a source and a low impedance load.
voltage gain - Also called voltage amplification. Ratio of amplifier output voltage to input voltage usually expressed in decibels.
voltage multiplier - Rectifier circuit using diodes and capacitors to produce a DC output voltage that is some multiple of the peak value of AC input voltage. Cost effective way of producing higher DC voltages. Voltage doublers and voltage triplers are examples.
voltage rating - Maximum voltage a component can withstand without breaking down.
voltage regulator - Device or circuit that maintains constant output voltage (within certain limits) in spite of changing line voltage and/or load current.
voltage source - Circuit or device that supplies voltage to a load.
voltaic cell - Primary cell having two unlike electrodes immersed in a solution that chemically interacts to produce a voltage.
volt-ampere - Unit of apparent power in an AC circuit containing capacitive or inductive reactance. Apparent power is the product of source voltage and current.
voltmeter - Instrument used to measure difference in potential between two points.
volume - Magnitude or power level of audio frequency. Measured in volume units (VU).

W

watt - Unit of electrical power required to do work at the rate of one joule per second. One watt of power is expended when one ampere of direct current flows through a resistance of one ohm. In an AC circuit, true power is the product of effective volts and effective amperes, multiplied by the power factor.
wattage rating - Maximum power a device can safely handle continuously.
watt-hour - Unit of electrical work, equal to a power of one watt being absorbed for one hour.
wattmeter - Instrument used to measure electric power in watts.
wave - Electric, electromagnetic, acoustic, mechanical or other form whose physical activity rises and falls or advances and retreats periodically as it travels through some medium.

waveform - Shape of a wave.
waveguide - Rectangular or circular pipe used to guide electromagnetic waves at micro frequencies.
wavelength - (l) Distance between two points of corresponding phase and is equal to waveform velocity divided by frequency.
weber - (Wb) Unit of magnetic flux. One weber is the amount of flux that when linked with a single turn of wire for an interval of one second will induce an electromotive force of one volt.
wien-bridge oscillator - Oscillator that uses an RC low-pass filter and an RC high-pass filter to set the frequency of oscillations.
wet cell - Simple cell consisting of a liquid as the electrolyte.
wetting - Term used in soldering to describe the condition that occurs when the metals being soldered are heated enough to melt the solder so it flows over the surface.
wheatstone bridge - Four arm bridge circuit used to measure resistance, inductance or capacitance.
wideband amplifier - Also called "broadband amplifier." Amplifier with a flat response over a wide range of frequencies.
winding - One or more turns of a conductor wound in the form of a coil.
wire - Single solid or stranded group of conductors having a low resistance to current flow. Used to make connections between circuits or points in a circuit.
wire gauge - American wire gauge (AWG) is a system of numerical designations of wire diameters.
wireless - Term describing radio communication that requires no wired between two communicating points.
wire wound resistor - Resistor in which the resistive element is a length of high resistance wire or ribbon usually nichrome wound onto an insulating form.
wire wrapping - Method of making a connection by wrapping wire around a rectangular pin.
woofer - Large loudspeaker designed primarily to reproduce low frequency audio signals.
work - Work is done any time energy is transformed from one type to another. The amount of work done is dependent on the amount of energy transformed.

X

X - Symbol for reactance
X axis - Horizontal axis

Y

Y - Symbol for admittance.
Y axis - Vertical axis.

Z

Z axis - Axis perpendicular to both X and Y axes.
Zener Diode - Semiconductor diode in which reverse breakdown voltage current causes the diode to develop a constant voltage. Used as a clamp for voltage regulation.
Zeroing - Calibrating a meter so that it shows a value of zero when zero is being measured.

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